

What is Claimed is:

1. A punch tool comprising a punch element comprising a punch having a lower punch tip, and a punch driver element having an upper surface adapted to be engaged by the ram of a punch press in a punching operation, said elements being axially aligned and threaded together to enable axial adjustment of the length of the combined punch driver and punch element in response to relative rotation of said elements, one of said elements including, adjacent its periphery and spaced from its axis, a latch movable along an axis parallel to the axis of said elements between an upper, locked position preventing relative rotation of said elements and a lower, unlocked position permitting relative rotation of said elements, and a spring having a predetermined spring constant and urging said latch into its upper, locked position, said latch having a sufficiently low mass and said spring having a sufficiently great spring constant as to prevent said latch from unintentional movement into its unlocked position in response to striking of the punch driver element by a punch press ram during a punching operation.

2. The punch tool of claim 1 wherein said punch element includes a punch guide having a bore through which said punch axially moves in a punching operation, and wherein said punch guide includes an upper peripheral portion having a housing receiving said latch and spring, said punch driver element including a plurality of axially extending cavities receptive of said latch when the latter is in its upper, locked position to prevent rotation of said punch driver element with respect to said punch guide.

3. The punch tool of claim 2 wherein said punch guide has an upper rim and wherein said punch driver includes a locking disc positioned beneath said upper rim of said punch guide, said disc having a plurality of circumferentially spaced grooves in its outer periphery defining said cavities and positioned to receive said latch when the latter is in its upper, locked position.

4. The punch tool of claim 3 wherein said latch comprises a body configured to be axially received in said grooves, said body having a recess along its length that is receptive of said disc when said latch is moved to its lower, unlocked position to enable said disc to rotate with respect to said latch.

5. The punch tool of claim 4 wherein said latch includes a manually accessible surface extending upwardly no higher than said rim to facilitate manual downward movement of said latch.

6. The punch tool of claim 2 wherein said punch guide has a generally cylindrical outer surface and carries said housing at least partially outside of said cylindrical surface to facilitate manual operation of said latch.

7. The punch tool of claim 6 wherein said punch driver element includes an outer periphery having vertically extending, circumferentially spaced, downwardly open slots defining said cavities and positioned to receive said latch when the latter is in its upper, locked position.

8. The punch tool of claim 7 wherein said latch includes a vertically extending shaft slidable vertically in said housing, and a manually accessible outwardly protruding key mounted to said shaft to facilitate manual movement of said shaft.

9. A punch tool comprising:  
a punch driver having an upper surface adapted to be engaged by the ram of a punch press during a punching operation;  
a punch element axially aligned with and threadably secured to the punch driver, wherein the punch element has a lower punch tip, wherein the punch driver and punch element together have an effective length, such that the effective length is changed by rotating the punch driver relative to the punch element; and

a latch member secured to the punch element, wherein the latch member has a locked position for preventing rotation of the punch driver relative to the punch element, and an unlocked position for permitting rotation of the punch driver relative to the punch element, wherein the latch member is disposed external to the punch driver.

5           10.     A punch tool as in claim 9, wherein the punch driver is free to travel axially relative to the latch member in both the locked and unlocked latch positions.

11.     A punch tool as in claim 9, wherein the punch driver has a periphery, wherein the punch driver has a locking portion disposed about the punch driver periphery and the latch member engages the punch driver locking portion in the locked position to prevent rotation of the punch driver relative to the punch element.

12.     A punch tool as in claim 9, wherein the punch driver has a periphery, wherein the punch driver has a substantially cylindrical locking disk secured about the punch driver periphery and the latch member engages the locking disk in the locked position to prevent rotation of the punch driver relative to the punch element.

13.     A punch tool as in claim 9, wherein the punch element comprises a punch guide, a punch holder slidably disposed within the punch guide, and a punch secured to the punch holder, wherein the latch member is secured to the punch guide, further comprising a biasing member operably disposed between the punch driver and the punch guide for resiliently biasing the punch driver axially away from the punch guide, wherein the latch member is isolated from the punch driver by the biasing member.

14.     A punch tool as in claim 13, wherein the threadably securing between the punch driver and the punch element includes threadably securing the punch holder to the punch driver.

15.     A punch tool comprising:

a punch driver having an upper surface adapted to be engaged by the ram of a punch press during a punching operation;

5 a punch element axially aligned with and threadably secured to the punch driver, wherein the punch element has a lower punch tip, wherein the punch driver and punch element together have an effective length, such that the effective length is changed by rotating the punch driver relative to the punch element; and

a latch member secured to the punch element, wherein the latch member has a locked position for preventing rotation of the punch driver relative to the punch element, and an unlocked position for permitting rotation of the punch driver relative to the punch element, wherein the latch member is not carried by the punch driver, such that the latch member is not urged to travel by axial travel of the punch driver.

16. A punch tool as in claim 15, wherein the punch element comprises a punch guide, a punch holder slidably disposed within the punch guide, and a punch secured to the punch holder, wherein the latch member is secured to the punch guide, further comprising a biasing member operably disposed between the punch driver and the punch guide for resiliently biasing the punch driver axially away from the punch guide, wherein the latch member is isolated from the punch driver by the biasing member.